

REMARKS

In the Office Action, claims 1-8, 10, 12, 14, 16, and 18 stand rejected in view of prior art. No other objections or rejections were made in the Office Action.

Status of Claims and Amendments

In response to the August 22, 2007 Office Action, Applicants respectfully traverse the rejections, and have added new claims 20-22 as show above. Thus, claims 1-8, 10, 12, 14, 16, 18, and 20-22 are pending, with claims 1, 8, 10, 12, 14, 16, and 18 being the only independent claims. Reexamination and reconsideration of the pending claims are respectfully requested in view of above amendments and the following comments.

Rejections - 35 U.S.C. § 102

On pages 3 and 4 of the Office Action, claims 1 and 4 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,114,888 (Walley). In response, Applicants respectfully traverse the rejections.

In particular, claim 1 of the present application recites that a controller is configured to calculate a variation in gain characteristics of the voltage controlled oscillator using the control voltage outputted from the voltage detector to adjust gain of at least one of the phase comparator, the loop filter and the voltage controlled oscillator, and to control gain of a loop composed of the phase comparator, the loop filter, the voltage controlled oscillator and the divider to be uniform.

It is stated in the Office Action that Wally discloses a duty cycle & gain adjust controller 325 as the controller of the present invention. However, Applicants respectfully assert that the duty cycle & gain adjust controller 325 is different. Referring to Fig. 3 of Walley, Applicants respectfully assert that if the duty cycle & gain adjust controller 325 of Walley had calculated the variation in the gain characteristic of the voltage controlled oscillator, the input 311 should have been at least after a loop gain adjust 313 that is used to change gain of the PLL.

Applicants respectfully assert that this structure is *not* disclosed or suggested by Walley or any other prior art of record. It is well settled under U.S. patent law that for a reference to anticipate a claim, the reference must disclose each element of the claim within

the reference. Therefore, Applicants respectfully submit that claim 1 is not anticipated by the prior art of record. Withdrawal of this rejection is respectfully requested.

Moreover, Applicants believe that claim 4 is also allowable over the prior art of record in that it depends from independent claim 1, and therefore are allowable for the reasons stated above. Also, the dependent claim 4 is further allowable because it includes additional limitations. Thus, Applicants believe that since the prior art of record does not anticipate the independent claim 1, neither does the prior art anticipate the dependent claim. Applicants respectfully request withdrawal of the rejections.

Rejections - 35 U.S.C. § 103

On pages 4-7 of the Office Action, claim 2 stands rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,114,888 (Walley) in view of U.S. Patent No. 5,999,024 (Kang), claim 3 stands rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,114,888 (Walley) in view of U.S. Patent No. 5,166,641 (Davis et al.), claim 5 stands rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,114,888 (Walley), claim 6 stands rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,114,888 (Walley) in view of U.S. Patent No 5,686,864 (Martin et al.), and claim 7 stands rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,114,888 (Walley) in view of U.S. Patent Publication No. 2002-005764 (Kobayashi et al.). In response, Applicants respectfully traverse the rejections.

With regards to claims 2, 3, and 5-7, Walley does not disclose the controller, as mentioned above. Kang is cited in the Office Action to show the PLL where the division value is set based on a signal from the controller and the controller receives a control signal from the loop filter. Davis et al. are cited in the Office Action to show that the PLL has a phase detector that includes the charge pump. Martine et al. are cited in the Office Action to show the voltage controlled oscillator that includes at least two sub-voltage controlled oscillator. Kobayashi et al. are cited in the Office Action to show the voltage controlled oscillator that includes at least one inductor and one capacitor determining a frequency band and frequency gain of the voltage controlled oscillator.

Applicants respectfully assert that claim 2, 3, and 5-7 are allowable over the prior art of record in that they depend from independent claim 1, and therefore are allowable for the reasons stated above. Also, the dependent claims 2, 3, and 5-7 are further allowable because

they include additional limitations. Thus, Applicants believe that since the prior art of record does not anticipate the independent claim 1, neither does the prior art anticipate the dependent claims.

On pages 7-16 of the Office Action, claims 8, 10, and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,079,522 (Owen), claim 14 stands rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,079,522 (Owen) in view of U.S. Patent No. 5,166,641 (Davis et al.), claim 16 stands rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,079,522 (Owen) in view of U.S. Patent No. 6,114,888 (Walley), and claim 18 stands rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,079,522 (Owen) in view of U.S. Patent Publication No. 2002-005764 (Kobayashi et al.). In response, Applicants respectfully traverse the rejections.

Applicants respectfully assert that none of the prior art of record discloses specific steps that Applicants recite in claims 8, 10, 12, 14, 16, and 18. Therefore, Applicants respectfully assert that none of the prior art of record nor any combination thereof makes the present invention obvious.

Further, with regards to claim 8, Applicants respectfully assert that Owen is silent about setting the first and second division rate. With regards to claim 10, Applicants respectfully assert that Owen is silent about the first and second predetermined frequency. With regards to claim 12, 14, 16, and 18, Applicants respectfully assert that Owen is silent about detecting the control voltage value from the control signal at a predetermined reference frequency.

It is well settled in U.S. patent law that the mere fact that the prior art can be modified does *not* make the modification obvious, unless the prior art provides an *apparent reason* for the desirability of the modification. Accordingly, the prior art of record lacks any apparent reason, suggestion or expectation of success for combining the patents to create the Applicants' unique arrangement of the method of detecting frequency gain of the voltage controlled oscillator.

Therefore, Applicants respectfully request that the rejections be withdrawn in view of the above comments and amendments.

New Claims

Applicants have added new claims 20-22. Claim 20 recites that the phase comparator includes a phase detection unit, and that the gain of the phase comparator is controlled by adjusting a driving bias variable current source of the charge pump circuit. Claim 21 recites that the loop filter includes a filtering unit. Claim 23 recites that the loop filter outputs a second control signal to the loop filter and a third control signal to the voltage controlled oscillator. Applicants respectfully assert that claims 20-22 are allowable in that they depend from independent claim 1, and therefore are allowable for the reasons stated above. Also, the dependent claims 20-22 are further allowable because they include additional limitations. Thus, Applicants believe that since the prior art of record does not anticipate the independent claim 1, neither does the prior art anticipate the dependent claims.

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In view of the foregoing amendment and comments, Applicants respectfully assert that claims 1-8, 10, 12, 14, 16, 18, and 20-22 are now in condition for allowance. Reexamination and reconsideration of the pending claims are respectfully requested.

Respectfully submitted,

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